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Filed : January 23, 2004

REMARKS

I. GENERAL REMARKS

Upon entry of this Amendment, claims 1, 2, 4-22, 24-33, and 35-39 will be pending in this application. Applicants have amended the claims to more clearly recite that the upper and lower belts are each supported by a rigid surface, as recited in, e.g., original claim 3. Applicants have amended claim 14 and 32 to more clearly indicate that at least one set of opposing belts is driven. The remaining claim amendments are to adopt suggestions made by the Examiner, or to correct claim dependencies.

No new matter has been added.

II. CLAIM OBJECTIONS

In paragraph 1 of the Office action, the Examiner has objected to claims 2, 37, and 38 because they contain typographical errors. By this Amendment, Applicants have corrected these typographical errors, and this objection should be withdrawn.

III. INDEFINITENESS REJECTIONS

In paragraph 3 of the Office action, the Examiner has rejected claims 1-3, 6, 8, 10-13, 22, 25, 26, 30, 31, 35-37, and 39 as indefinite under 35 U.S.C. § 112, second paragraph. Applicants respectfully traverse this rejection, and request reconsideration and withdrawal thereof.

Applicants have amended the claims to clarify any perceived ambiguities, and adopt the suggestions made by the Examiner. Applicants respectfully submit that a worker of ordinary skill would be readily able to determine whether a particular apparatus or method falls within or without the scope of the claims. The claims are thus clear and definite. As such, the Examiner's rejection should be withdrawn.

IV. ANTICIPATION REJECTIONS

A. Anticipation Rejection over Smith

In paragraph 5 of the Office action, the Examiner has rejected claims 1, 3, 4, 14, 21, 23, 29, 32, and 34 under 35 U.S.C. § 102(b) as anticipated by Smith (U.S. Patent No. 529,535).

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Applicants respectfully traverse this rejection and request reconsideration and withdrawal thereof.

The Examiner cites, in particular, Figure 1 and page 1, lines 50-101 of Smith. Applicants respectfully submit that neither this portion of the Smith disclosure nor any other portion, anticipates Applicants' claims. Smith fails to disclose an upper belt that is supported by a rigid surface. Accordingly, Smith fails to anticipate Applicants' claims. Moreover, there is no suggestion in Smith that such support should be provided, or that the apparatus disclosed in Smith should in any way be modified to provide such support.

B. Anticipation Rejection Over Holman

In paragraph 6 of the Office action, the Examiner has rejected claims 1, 3-6, 14, 16, 20, 21, 23-25, 29, 30, 32, and 34-36 under 35 U.S.C. § 102(b) as anticipated by Holman (U.S. Patent No. 3,890,077). Applicants respectfully traverse this rejection and request reconsideration and withdrawal thereof.

The Examiner specifically cites Figures 1, 5, and 7, and the specification at column 2, lines 35-38 and column 3, lines 1-60 as disclosing Applicants' invention. As with Smith, Holman fails to disclose supporting an upper belt with a rigid supporting surface, either in the portion of the disclosure specifically relied upon by the Examiner, or elsewhere in Holman. As a result, Holman fails to anticipate Applicants' claims, and the Examiner's rejection should be withdrawn.

C. Anticipation Rejection Over Berner

In paragraph 7, the Examiner has rejected claims 1, 3, 9, 14, 17, 21, 23, 27, 29, 32, and 34 under 35 U.S.C. § 102(b) as anticipated by Berner (U.S. Patent No. 3,065,500). Applicants respectfully traverse this rejection and request reconsideration and withdrawal thereof.

The Examiner specifically relies upon Figures 1-3 and column 2, lines 13-60. However, Berner does not disclose the use of a rigid supporting surface as this term is used in Applicants' claims.

The Examiner asserts that the belts in Berner are supported by "rigid support rollers." However, nowhere does Berner disclose that the rollers are "rigid." To the contrary, Berner discloses that the rollers "function to insure proper positioning of those parts of the belts particularly when they are subjected to an outward working pressure." Berner, column 2, lines

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58-61. In other words, the rollers merely keep the belt from undergoing large amounts of deflection, a function that can be performed as well if the rollers are flexible, rather than rigid. There is also no indication in Berner that the rollers are rigidly affixed to the apparatus; a floating roller could as easily exert sufficient pressure on the belt to oppose any deflection and restore the belt to the desired path of travel.

The rollers of Berner, whether rigid or rigidly supported or not, only provide support for the parts of the belt directly adjacent to them (as recognized by Berner in the passage quoted above). In effect, there are large regions of the belt between rollers where there is no support for the belt. Applicants have found that such an arrangement does not provide adequate pressure on the forming composite, and does not allow for sufficient mold cavity integrity to prevent the material being processed from squeezing through the belts in regions where there are no rollers. In effect, a roller provides merely a point support, not a planar or surface support, as provided by a rigid supporting surface.

In light of the failure of Berner to disclose all of the limitations of Applicants' claims, Applicants respectfully submit that Berner fails to anticipate the claims, and that this rejection should be withdrawn.

D. Anticipation Rejection Over Saeki et al.

In paragraph 8 of the Office action, the Examiner has rejected claims 1, 3, 9, 14, 16, 17, 21, 23, 27, 29, 32, and 34 under 35 U.S.C. § 102(b) as anticipated by Saeki et al. (U.S. Patent No. 5,340,300). Applicants respectfully traverse this rejection and request reconsideration and withdrawal thereof.

The Examiner specifically relies upon Figures 2-5 and 13, and column 4, lines 31-45. The Examiner asserts that Saeki et al. disclose rigid support rollers 12 which exert pressure on the moldable material being processed by the Saeki et al. apparatus. However, as with the other cited references, Saeki et al. do not disclose that the rollers are rigid. Indeed, since the rollers appear only on the extremes of the belt length like nip rollers, they do not constitute a rigid supporting surface.

In addition, Applicants' claims recite that the claimed system contains a drive mechanism for imparting motion to at least two of the belts. Saeki et al. does not disclose any such drive mechanism; instead, the motion of the formed piece through the belts causes them to move.

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In light of the failure of Saeki et al. to teach every limitation recited in Applicants' claims, Applicants respectfully submit that Saeki et al. fails to anticipate the claimed invention, and that the Examiner's rejection should be withdrawn.

E. Anticipation Rejection Over Kemerer et al. '369

In paragraph 9 of the Office action, the Examiner has rejected claims 1-3, 10-15, 17-23, 28, 29, 32-34, and 39 under 35 U.S.C. § 102(b) as anticipated by Kemerer et al. (U.S. Patent No. 4,128,369). Applicants respectfully traverse this rejection and request reconsideration and withdrawal thereof.

The Examiner specifically cites Figures 23-24, column 1, lines 24-32, column 12, lines 41-45, column 13, lines 1-3, and column 27, lines 1-33. As with the other cited references, there is no indication in Kemerer et al. that the rollers are rigid. Indeed, Kemerer et al. disclose at column 16, lines 8-13 that the rollers 100 can have circumferential fins that allow cooling liquid to be passed between them on the belt surface. The rollers are therefore not present to provide a rigid supporting surface, but to provide point support and distribute cooling liquid across the belt surface. As a result, the roller system disclosed in Kemerer et al. allows for fluctuations in pressure of the moldable material as it passed through the mold cavity in between the rollers. This problem is recognized in the other Kemerer et al. reference cited by the Examiner, U.S. Patent No. 5,700,495, at column 2, lines 8-16.

Because of the failure of Kemerer et al. to disclose each of the features of the invention, Applicants' respectfully submit that Kemerer et al. does not anticipate the claimed invention, and the Examiner's rejection should be withdrawn.

F. Anticipation Rejection over Sagane et al.

In paragraph 10 of the Office action, the Examiner has rejected claims 1, 3-5, 14, 16, 17, 21, 23, 24, 29, 32, 34, and 35 under 35 U.S.C. § 102(b) as anticipated by Sagane et al. (U.S. Patent No. 3,917,774). Applicants respectfully traverse this rejection and request reconsideration and withdrawal thereof.

The Examiner specifically references Figures 1, 2, and 13b, and column 4, lines 8-16, column 5, lines 28-45, and column 7, lines 6-20 and 55-65. Applicants respectfully submit that none of these passages disclose a belt system containing a drive mechanism for driving the belts. To the contrary, the apparatus disclosed by Sagane et al. relies on the movement of the fibers

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through the apparatus to advance the composite through, turning the rollers as it moves. This is quite different from a driven roller system as recited in Applicants' claims.

In view of the differences between the apparatus disclosed by Sagane et al. and that recited in Applicants' claims, Applicants respectfully submit that Sagane et al. fails to anticipate the claimed invention, and the Examiner's rejection should be withdrawn.

V. OBVIOUSNESS REJECTIONS

A. Obviousness Rejection over Sagane et al.

In paragraph 14 of the Office action, the Examiner has rejected claims 2, 9-13, 15, 18, 19, 22, 27, 28, 33, 38, and 39 are rejected under 35 U.S.C. § 103(a) as obvious over Sagane et al. Applicants respectfully traverse this rejection and request reconsideration and withdrawal thereof.

The Examiner's comments fail to address the failure of Sagane et al. to disclose or suggest a driven belt system, as recited in Applicants' claims. As explained above, the apparatus disclosed by Sagane et al. rely upon the advancement of a bundle of fibers, embedded in a composite matrix, to advanced the belts along with them. A driven belt system, such as that recited in the claims, uses the belts to move the composite through the system (the opposite of the arrangement disclosed in Sagane et al.).

Sagane et al. actually teach away from such a modification at column 4, lines 19-28:

According to the above process, the foamable liquid is transferred while contained in the bundle of the fibre, allowed to foam up to contact the surfaces of the endless belts, and allowed to complete hardening in contact with the endless belts which advance along with the bundle of the fibre. There is, therefore, no friction between the foamed resin and the endless belts; consequently there can be easily obtained an article having a beautiful surface and shape just equal to the shape of the passage.

In other words, since using a driven belt system would require considerable effort at synchronization of the belt movement with that of the fibers through the device to avoid stresses that could damage the fiber, and would not result in the advantages of allowing the belts to advance along with the fiber, one of ordinary skill in this art would not have been motivated to modify the Sagane et al. process by driving the belts. As a result, the Examiner has failed to establish a *prima facie* case of obviousness, and this rejection should be withdrawn.

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B. Obviousness Rejection over Sagane et al. in view of Kemerer et al. '495

In paragraph 15 of the Office action, the Examiner has rejected claims 6-8, 25, 26, 30, 31, 36, and 37 under 35 U.S.C. § 103(a) as obvious over Sagane et al. in view of Kemerer et al (U.S. Patent No. 5,700,495). Applicants respectfully traverse this rejection and request reconsideration and withdrawal thereof.

Applicants respectfully submit that one having ordinary skill in the art would not have been motivated to combine the teachings of Sagane et al. with those of Kemerer et al. First, Sagane et al. use undriven rollers to synchronize the speed at which the fiber is advanced to that of the rollers in contact with the foaming composite. Kemerer et al. use driven rollers and no fiber. The Examiner has not explained why one of ordinary skill in this art would have been motivated to disregard these significant differences in the processes and combine the reference teachings.

Second, Kemerer et al. '495 provide methods for cooling the moldable material by extracting heat through the belts, and thereby eliminating the disadvantages inherent in the process described in earlier referenced Kemerer et al. '369. Other than to broadly state that heating and cooling can easily be done because of the distance between rolls, Sagane et al. is unconcerned with the specifics of heating or cooling. As a result, the Examiner suggests combining a reference that teaches a wide spacing of rolls (Sagane et al.) with one that suggests that having rolls creates problems with pressure variation (Kemerer et al. '495) without any explanation of how these different teachings can or should be reconciled.

In view of the failure to suggest adequate motivation for combining the reference teachings, Applicants submit that, for this reason alone, the Examiner has failed to establish a *prima facie* case of obviousness. Accordingly, the Examiner's rejection should be withdrawn.

Applicants respectfully submit that the claims of this application are clear and definite, and are not anticipated or rendered obvious by the prior art cited by the Examiner. An early notification of allowability is earnestly solicited.

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Please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No. 11-1410.

Respectfully submitted,

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